



PROBLEM SOLVING ACTIVITY: CO₂ AND TEMPERATURE: WHAT'S THE CONNECTION?

OBJECTIVE: Students will:

- ✚ Evaluate the correlation between temperatures and CO₂ concentrations in the atmosphere;
- ✚ Analyze patterns from the past and present;
- ✚ Understand how past patterns can help predict future events.

MATERIALS:

- ✚ Copies of latest data from Vostok ice core
- ✚ Paper/pencil
- ✚ **Student Sheets**

PROCEDURE:

1. Read and discuss the background information above and the graph of the Vostok Ice Core data.
2. Focus on the graph and how the graph is formatted.
 - ✚ Check student's ability to interpret the data on both axes.
 - ✚ Call attention to the highs and lows of the graph and ask for possible connections between the two.
3. Students should be able to clearly understand the correlation presented in the graph.
 - ✚ As CO₂ levels have risen, the global climate has warmed.
 - ✚ Lower concentrations of CO₂ correspond with periods of global cooling.
 - ✚ Low points in the graph indicate ice ages; high points indicate interglacial periods.
4. Students will be working with a partner.
 - ✚ Their task is to analyze the graph.
 - ✚ They should use the questions in the **ANALYSIS and APPLICATION** and CONCLUSIONS sections as a guide.

Teacher Sheet 2

- ✚ Students should prepare a written statement in paragraph form of at least 500 words in which they do the following:
 - ✚ Suggest an explanation for the relationship between the two pieces of data which refutes skeptics claims;
 - ✚ Predict what the effects of a continue rise in carbon dioxide emissions over the next 2 decades could mean for the Earth.
 - ✚ Be ready to present their conclusions to the class.
 - ✚ Create visuals to aid in their presentation.

*****NOTE: A large copy of the latest graph of Antarctic data is included for student use.**